

C L A I M S

1. A CDMA receiving apparatus

characterized

2 by comprising:

3 a radio reception unit which outputs a
4 radio reception output in an uplink communication
5 channel on which an individual channel occupied by
6 each user and a shared channel shared among all users
7 are multiplexed on the basis of a CDMA scheme, by
8 performing signal processing for a radio band signal
9 received by a reception antenna;

10 a channel estimation circuit which receives
11 a signal corresponding to an individual channel of an
12 arbitrary user which is obtained by performing
13 despreading operation for the radio reception output,
14 and calculates a channel estimation value indicating
15 phase and amplitude fluctuations due to a channel
16 from phase/amplitude information after despreading of
17 a known Pilot portion symbol;

18 a channel estimation value correction
19 circuit which corrects the channel estimation value
20 from said channel estimation circuit on the basis of
21 a reception power fluctuation due to uplink
22 transmission power control which is caused by a
23 timing offset between the individual channel of the
24 user and the shared channel; and

25 a shared channel demodulation circuit which

26 demodulates a signal corresponding to the shared
27 channel of the user which is obtained by performing
28 despread operation for the radio reception output
29 on the basis of the channel estimation value
30 corrected by said channel estimation value correction
31 circuit.

2. A CDMA receiving apparatus according to
2 claim 1, characterized by further comprising a
3 reception power difference correction coefficient
4 calculation circuit which receives timing offset
5 information of the user and uplink transmission power
6 control command information, and calculates a
7 reception power difference correction coefficient,
8 which corrects a reception power fluctuation, by
9 estimating a reception power fluctuation
10 corresponding to an uplink power control command in a
11 timing offset interval,
12 wherein said channel value correction
13 circuit corrects a channel estimation value from said
14 channel estimation circuit on the basis of a
15 reception power difference correction coefficient
16 from said reception power difference correction
17 coefficient calculation circuit.

3. A CDMA receiving apparatus according to
2 claim 1, characterized in that said channel
3 estimation value correction circuit corrects a
4 plurality of channel estimation values before and

5 after the timing which are obtained by said channel
6 estimation circuit on the basis of the reception
7 power fluctuation, and then outputs the channel
8 estimation values after correction upon performing
9 averaged weighting thereof.

4. A CDMA receiving apparatus according to
2 claim 4, characterized by further comprising
3 a path detection circuit which detects path
4 delays associated with an individual channel and
5 shared channel of the user from the radio reception
6 output,
7 an individual channel despreading circuit
8 which outputs a signal corresponding to the
9 individual channel of the user by performing
10 despreading operation for the radio reception output
11 on the basis of the path delay of the individual
12 channel of the user, and
13 a shared channel despreading circuit which
14 outputs a signal corresponding to the shared channel
15 of the user by performing despreading operation for
16 the radio reception output on the basis of the path
17 delay of the shared channel of the user.

5. A CDMA receiving apparatus according to
2 claim 4, characterized by further comprising an
3 individual channel demodulation circuit which
4 demodulates a Data portion of the individual channel
5 of the user from the signal corresponding to the

6 individual channel on the basis of the channel
7 estimation value.

6. A CDMA receiving apparatus according to
2 claim 5, characterized by further comprising
3 an individual channel path demodulation
4 unit, for each individual channel of the user, which
5 comprises said individual channel despreading
6 circuit, said channel estimation circuit, and said
7 individual channel demodulation circuit,
8 an individual channel RAKE combining
9 circuit which outputs an individual channel
10 demodulation result on the user which is obtained by
11 RAKE-combining demodulation outputs from said
12 individual channel demodulation circuits of said
13 individual channel path demodulation units,
14 a shared channel demodulation unit, for
15 each shared channel of the user, which comprises said
16 shared channel despreading circuit, said channel
17 estimation value correction circuit, and said shared
18 channel demodulation circuit, and
19 a shared channel RAKE combining circuit
20 which outputs a shared channel demodulation result on
21 the user which is obtained by RAKE-combining
22 demodulation outputs from said shared channel
23 demodulation circuits of said shared channel path
24 demodulation units.

7. A CDMA receiving method characterized

by

2 comprising:

3 the radio reception step of outputting a

4 radio reception output in an uplink communication

5 channel on which an individual channel occupied by

6 each user and a shared channel shared among all users

7 are multiplexed on the basis of a CDMA scheme, by

8 performing signal processing for a radio band signal

9 received by a reception antenna;

10 the channel estimation step of receiving a

11 signal corresponding to an individual channel of an

12 arbitrary user which is obtained by performing

13 despreading operation for the radio reception output,

14 and calculating a channel estimation value indicating

15 phase and amplitude fluctuations due to a channel

16 from phase/amplitude information after despreading of

17 a known Pilot portion symbol;

18 the channel estimation value correction

19 step of correcting the channel estimation value

20 calculated on the basis of a reception power

21 fluctuation due to uplink transmission power control

22 which is caused by a timing offset between the

23 individual channel of the user and the shared

24 channel; and

25 the shared channel demodulation step of

26 demodulating a signal corresponding to the shared

27 channel of the user which is obtained by performing

28 despread operation for the radio reception output
29 on the basis of the channel estimation value
30 corrected in the channel estimation value correction
31 step.

8. A CDMA receiving method according to
claim

2 7, characterized by further comprising the reception
3 power difference correction coefficient calculation
4 step of receiving timing offset information of the
5 user and uplink transmission power control command
6 information, and calculating a reception power
7 difference correction coefficient, which corrects a
8 reception power fluctuation, by estimating a
9 reception power fluctuation corresponding to an
10 uplink power control command in a timing offset
11 interval,

12 wherein the channel value correction step
13 comprises the step of correcting a calculated channel
14 estimation value on the basis of a calculated
15 reception power difference correction coefficient.

9. A CDMA receiving method according to
claim

2 7, characterized in that the channel estimation value
3 correction step comprises
4 the step of correcting a plurality of
5 channel estimation values before and after the
6 obtained timing on the basis of the reception power

7 fluctuation, and
8 the step of outputting the channel
9 estimation values after correction upon performing
10 averaged weighting thereof.

10. A CDMA receiving method according to
claim

2 7, characterized by further comprising
3 the path detection step of detecting path
4 delays associated with an individual channel and
5 shared channel of the user from the radio reception
6 output,
7 the individual channel despreading step of
8 outputting a signal corresponding to the individual
9 channel of the user by performing despreading
10 operation for the radio reception output on the basis
11 of the path delay of the individual channel of the
12 user, and
13 the shared channel despreading step of
14 outputting a signal corresponding to the shared
15 channel of the user by performing despreading
16 operation for the radio reception output on the basis
17 of the path delay of the shared channel of the user.

11. A CDMA receiving method according to
claim

2 10, characterized by further comprising the
3 individual channel demodulation step of demodulating
4 a Data portion of the individual channel of the user

5 from the signal corresponding to the individual
6 channel on the basis of the channel estimation value.

12. A CDMA receiving method according to
claim

2 11, characterized by further comprising

3 the individual channel path demodulation
4 step, for each individual channel of the user, which
5 comprises the individual channel despreading step,
6 the channel estimation step, and the individual
7 channel demodulation step,

8 the individual channel RAKE combining step
9 of outputting an individual channel demodulation
10 result on the user which is obtained by
11 RAKE-combining demodulation outputs from the
12 individual channel demodulation steps of the
13 individual channel path demodulation steps,

14 the shared channel demodulation step, for
15 each shared channel of the user, which comprises the
16 shared channel despreading step, the channel
17 estimation value correction step, and the shared
18 channel demodulation step, and

19 the shared channel RAKE combining step of
20 outputting a shared channel demodulation result on
21 the user which is obtained by RAKE-combining
22 demodulation outputs from the shared channel
23 demodulation steps of the shared channel path
24 demodulation steps.